

APPLICANTS: Smith and Taubman  
SERIAL NUMBER: 09/290,049

## REMARKS

Claims 21-23 and 81-105 are pending. Claims 25, 28, and 33 have been cancelled herein. Claims 21, 23 and 93-105 have been amended. The amendment to claim 21 is supported by disclosure at page 9, lines 9-13 of the specification and by the Sequence Listing. The amendments to claims 23 and 105 are supported by disclosure at page 10, line 30 through page 11, line 4 of the specification and by previously filed claim 25. Claims 93-104 have been amended to depend from claim 23.

No new matter has been added by this amendment.

### Obviousness-Type Double Patenting

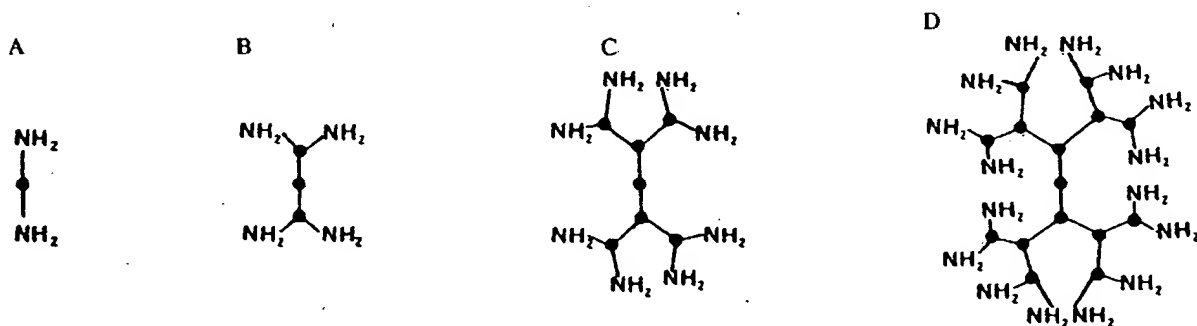
The Examiner has maintained the provisional rejection of claims 21, 22, and 25 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 12-15 of copending Application Number 09/562,328 ("the '328 application"). The Examiner has also rejected claims 23, 28, 33, and 81-105 as being unpatentable over claims 12-15 of the '328 application. Claims 12-15 of the '328 application were cancelled in the Response to Office Action for Application Number 09/562,328, filed January 13, 2004. Therefore, this provisional rejection is moot and should be withdrawn.

### 35 U.S.C. §112, second paragraph

The Examiner has maintained the rejection of claims 23, 28, and 33 as indefinite for the positions of the claimed amino acids. The Examiner has also rejected claim 105 as indefinite for the positions of the claimed amino acids. On page 4, lines 1-3, of Paper No. 33, the Examiner stated:

The amendments of claims 23, 28, and 33 remain indefinite for the position of the claimed amino acids because there is no requirement that the amino acids be a part of any of the recited SEQ ID Nos.

Claims 28 and 33 have been cancelled. Claims 23 and 105 have been amended to more clearly define the claimed invention. The claims now require a radially branched macromolecular structure with a central peptidyl core, which serves as a matrix or scaffold upon which two or more glucosyltransferase ("GTF") polypeptide immunogens are covalently attached. The peptidyl core contains a lysine, arginine, or histidine residue, and the branches of structure are GTF polypeptides selected from the recited Markush group, each of which are attached to a residue of the core. Such branched macromolecular immunogens are described in the specification (*See*, specification at page 10, line 30 through page 11, line 4 and at page 18, lines 1-5), and the general structural architecture is well known in the art (Tam, J.P., Proc. Natl. Acad. Sci. USA, 85:5409-13 (1988) ("Tam"), cited in the specification at page 18).



For further clarification of the claimed structure and for the Examiner's convenience, Fig. 1 of Tam is reproduced above. The claims have been amended to require such an immunogenic composition in which a GTF peptide (*e.g.*, SEQ ID NO: 2, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19) of the Markush group is covalently attached to a peptidyl core residue (lysine, arginine, or

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arginine, or histidine; represented by ● in A-D shown above) of the matrix to yield a structure with radially branching peptide arms. Each arm is a GTF polypeptide chosen from the Markush group. In view of these clarifications and the amendments to claims 23 and 105, Applicants respectfully request withdrawal of this rejection.

The Examiner has also rejected claims 21-23, 25, 28, 33, and 88-105 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. According to the Examiner, the claims recite an amino acid sequence subunit of glucosyltransferase of 15-21 amino acids in length, however, SEQ ID NOs: 3, 15, 16, 17, 18, and 19 are sequences of 22 amino acids in length. Claim 21 has been amended to recite an amino acid sequence subunit of glucosyltransferase of 15-22 amino acids in length. Claims 88-92 depend from claim 21, and therefore necessarily contain all of the limitations of claim 21. Claims 25, 28 and 33 have been cancelled, and the limitations of these claims have been incorporated into claims 23 and 105. Claims 93-104 have been amended to depend from claim 23, and therefore necessarily contain all of the limitations of claim 23. Claim 22 does not recite an amino acid length. Thus, Applicants contend that claims 21-23 and 88-105, as amended herein, are clear and definite. Therefore, this rejection should be withdrawn.

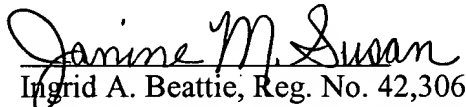
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### CONCLUSION

Applicants submit that the pending claims are in condition for allowance. If there are any questions regarding these amendments and remarks, the Examiner is encouraged to contact the undersigned at the telephone number provided below.

The Commissioner is hereby authorized to charge any additional fees that may be due, or credit any overpayment of same, to Deposit Account No. 50-0311 (Reference No. 25669-013).

Respectfully submitted,



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